

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF VIRGINIA
Alexandria Division**

UNITED STATES, et al.,)	
)	
Plaintiffs,)	
v.)	No. 1:23-cv-00108-LMB-JFA
)	
GOOGLE LLC,)	
)	
Defendant.)	

**PLAINTIFFS' OPPOSITION TO DEFENDANT GOOGLE LLC'S MOTION TO
EXCLUDE THE TESTIMONY OF PROF. ROBIN S. LEE**

INTRODUCTION

Defendant Google, LLC's ("Google") Motion to Exclude the Testimony of Professor Robin S. Lee ("Motion") seeks to exclude entirely the testimony of Prof. Lee, who has offered opinions about the relevant market definitions at issue in this case. Market definition is a crucial question because defining a market is an element of Plaintiffs' monopolization claims, and it is the product and geographic area within which the factfinder will evaluate the effects of Google's conduct on competition. Prof. Lee is a highly qualified economic expert whose anticipated testimony is predicated, in part, on (1) direct evidence from Google's own files, including its own descriptions of its ability to charge supracompetitive prices, (2) the widely accepted economic methodology called the hypothetical monopolist test ("HMT"), and (3) additional practical indicia of relevant markets. Prof. Lee has defined three relevant antitrust product markets and two geographic markets, and he has calculated market shares for each.

There is no basis to exclude Prof. Lee's testimony under Federal Rule of Evidence 702. His opinions will aid the trier of fact, are based on ample facts and data, and are the product of reliable principles and methods that have been reliably applied. Google's disagreements with Prof. Lee's interpretation of the evidence are classic matters for cross-examination, not exclusion, and the standards Google claims are applicable for the HMT are contrary to the recent testimony of its own expert. In fact, many of Google's arguments have little to do with *Daubert* at all and are instead an attempt to backdoor extra pages for summary judgment briefing that this Court previously rejected. *See, e.g.*, Mot. at 13-16; 21-24; 25-30. For the reasons below, the Motion should be denied.

BACKGROUND AND SUMMARY OF PROF. LEE'S OPINIONS

I. Prof. Lee Is a Highly Qualified Economist

Prof. Lee is a Ph.D. economist specializing in the field of industrial organization, which studies competition and the structure and functioning of markets. Exh. A, Lee Rep. ¶ 1. He is a tenured professor of economics at Harvard University and has published many articles in top peer-reviewed journals. *Id.* ¶¶ 2-3.

II. Prof. Lee's Expert Opinions Are Supported by Facts and Analysis

A. Prof. Lee Used the Hypothetical Monopolist Test to Define Three Relevant Product Markets

Market definition in antitrust cases “serves as a tool to determine the defendant’s market power.” *E.I. du Pont de Nemours and Co. v. Kolon Indus., Inc.*, 637 F.3d 435, 442 (4th Cir. 2011). It is a “pragmatic, factual” analysis and not a “formal, legalistic one.” *United States v. Brown Shoe*, 370 U.S. 294, 336 (1962). For that reason, “market definition is a question of fact.” *Kolon Indus.*, 637 F.3d at 442 (cleaned up). Markets are defined by product as well as geography. *Id.* at 441. To analyze the effects of Google’s anticompetitive conduct and the harm that conduct likely caused to competition, customers, and consumers, Prof. Lee defined three relevant markets for digital advertising technology products—(1) publisher ad servers, (2) ad exchanges, and (3) advertiser ad networks—and found that the relevant geographic areas for those products could be either worldwide or the United States. Lee Rep. ¶¶ 321, 338, 356 (product markets); ¶¶ 392-397, 401-404 (geographic markets).

Consistent with precedent and his academic expertise, Prof. Lee’s report started defining the relevant markets by focusing on the ability and willingness of customers to substitute among different products. In this regard, a properly defined market need not include *all* potential substitutes, because it is not necessary to suppress all potential substitutes for a monopolist to

exercise significant market power. *See Times-Picayune Publ'g Co. v. United States*, 345 U.S. 594, 612 n.31 (1953) (“For every product, substitutes exist. But a relevant market cannot meaningfully encompass that infinite range.”); *see also United States v. H&R Block, Inc.*, 833 F. Supp. 2d 36, 51 (D.D.C. 2011) (“The mere fact that a firm may be termed a competitor in the overall marketplace does not necessarily require that it be included in the relevant product market for antitrust purposes.”) (quoting *FTC v. Staples, Inc.*, 970 F. Supp. 1066, 1075 (D.D.C. 1997)); *see also* Lee Rep. ¶ 247. Here, the relevant markets contain products offered by Google and alternative products that would impose meaningful competitive constraints on Google’s products absent Google’s anticompetitive conduct. Lee Rep. ¶¶ 246-248; §§ IV.C.1, IV.D.1, IV.E.1.

Prof. Lee concluded this analysis by applying the well-established hypothetical monopolist test. *Id.* ¶¶ 248-254. That test is “commonly used in antitrust actions to define the relevant market” and asks “[i]f a single firm controlled the entire [] market, as defined by the [plaintiff], could it profitably impose a price increase?” *FTC v. IQVIA Holdings Inc.*, -- F. Supp. 3d --, 2024 WL 81232, at *25 (S.D.N.Y. Jan. 8, 2024). “[I]f the price increase would be profitable, then the [plaintiff] has defined the relevant product market accurately.” *Id.*; *see also* Lee Rep. ¶¶ 248-254. Prof. Lee conducted the HMT by using a variety of evidence and analyses, including direct evidence that Google possess substantial and sustained market power in each market; documents and testimony from Google, its customers, and its competitors; quantitative

analyses of the effects of price changes found in Google’s own files; and other qualitative evidence and practical indicia of relevant markets.¹

All three product markets Prof. Lee defines relate to open-web display advertising, a concept well understood by Google and others in the industry. Indeed, Google’s internal documents use the term when discussing its display advertising strategy. Exh. B, GOOG-TEX-00124296 at -396, Aug. 29, 2016 (cited in Lee Rep. ¶ 457 n.663 (discussing “display ads across the open web” as part of a “Strategy Book”)); Exh. C, GOOG-AT-MDL-010689638 at -647, Aug. 31, 2022 (identifying distinct “open web display advertising market”); Exh. D, GOOG-AT-MDL-006037366 at -366, Feb. 4, 2021 (identifying issues related to “all open web display . . . buying platforms (DSPs)”). The concept derives from the differences between ads viewable through an internet browser (“open web display” ads) versus display ads viewable elsewhere, such as display ads on smartphone apps or ads shown on “closed web” or “walled garden” platforms like social media websites.² Lee Rep. ¶¶ 49-50, 55-60; *see generally id.* §§ II.A and IV.B.

Prof. Lee’s analysis proceeded from the commercial reality that open-web display advertising is distinct and valuable for both the publishers who offer it and the advertisers who seek it. Lee Rep. § IV & ¶¶ 261-278. Because open-web display advertising is distinctively

¹ The evidence that Prof. Lee analyzes is consistent with the practical indicia that, under *Brown Shoe*, can establish that the three markets are well defined. *See Brown Shoe*, 370 U.S. at 325 (listing practical indicia); *see also, e.g.*, Lee Rep. ¶¶ 331, 346, 379 (industry documents); *id.* ¶¶ 138-141 (distinctiveness of pricing structures); *id.* ¶¶ 500-502, 536 (low customer sensitivity to price changes within AdX and Google Ads). Prof. Lee used this qualitative evidence to conduct the HMT and as a check to confirm that his economic analysis is consistent with market realities.

² Video ads that are interspersed in dedicated video content, also called “in-stream” video ads, are distinct from standalone video ads embedded within a display (*e.g.*, a video within a banner ad at the top of a website), also called “outstream” video ads. Lee Rep. ¶¶ 272, 290.

valuable to publishers and advertisers, these customers have limited ability to substitute away from products used to buy and sell that advertising, even if those products are priced higher than competitive levels. Prof. Lee considered the circumstances of both advertisers and publishers in defining his markets and concluded that neither substitution by publishers nor substitution by advertisers outside of each defined market will suffice to stop Google from charging supracompetitive prices. *Id.* ¶¶ 320, 322-28, 340, 342-345, 360-378.

Prof. Lee's analysis began with a common-sense observation: open-web publishers can only sell the inventory they have. Therefore, even if a publisher has two different properties that sell two different types of ads (like a website and a smartphone app), that does not diminish the publisher's need for tools that facilitate the sale of open-web display ads on its website. A website publisher cannot sell ad inventory on a smartphone app if the publisher does not own a smartphone app, nor can a website publisher sell ad inventory on a social media platform the publisher does not operate. Therefore, ad tech tools catering to ads on smartphone apps or social media platforms do not help website publishers sell open-web display ads. *Id.* ¶¶ 268-270, 275, 294-295, Fig. 79; Exh. E, Lee Reb. ¶ 108. Further, a publisher that owns multiple properties that generate advertising revenue, such as a website and a smartphone app, has incentives to monetize *each* channel's inventory, and moving advertising between different channels is not frictionless. *See* Lee Reb. ¶ 84 n.131.

Prof. Lee cited ordinary-course evidence that both publishers and advertisers distinguish between open-web display ads and other kinds of digital ads, including in-app ads (Lee Rep. ¶¶ 275, 299-303, 305-306; Lee Reb. ¶¶ 109), instream video ads (Lee Rep. ¶¶ 290-291; Lee Reb. ¶¶ 102, 122, 163-165), and social media, native, and search ads (Lee Rep. ¶¶ 276-278, 286-289, 305-306; Lee Reb. ¶¶ 102, 109, 122, 146, 153-155). For example:

- Google recognizes “Web, App, Instream Video, and Search” as four tranches of ads with “different industry and competitive dynamics, different types of partners with different business models and different technology challenges.” Lee Rep. ¶ 305 n. 417.
- Industry participants understand that advertisers view open-web display advertising budgets differently from other types of digital advertising. *Id.* ¶¶ 291, 306 n. 428 (quoting a Facebook document referencing “advertiser budgets . . . specifically dedicated to non-social programmatic spend, and hence inaccessible to Facebook’s O&O advertising”); *see also id.* ¶ 294 & n. 398 (quoting Meta deponent as stating that “web . . . was a very different environment” than app).
- Google’s own data shows that in 2022, 83% of AdX web publishers sold no impressions for mobile or table apps, *id.* ¶ 269 n. 354, and viewers of in-app ads, who are primarily smartphone users, differ from web users reached by open-web display ads, *id.* ¶ 301.
- “Closed web” sites such as Facebook—also known as “walled gardens”—create distinct challenges for both publishers and advertisers. From the publishers’ perspective, a series of walled gardens require each publisher to build its own ad tech tools; from the advertisers’ perspective, that series of walled gardens requires use of different tools, independently managed budgets, and reaches fewer users. Lee Rep. ¶¶ 300-303; *see also* Exh. F, Meta 30(b)(6) (Whitcombe) Dep. at 200:18-201:16.

In light of such direct, contemporaneous evidence—including Google and third-party business documents and depositions of Google and competitor employees, *see, e.g.*, Lee Rep. § IV.C.1-2 & ¶¶ 339-347, 357-384—and the other evidence described below, Prof. Lee applied the HMT and concluded that there is a relevant product market for each of three tools that facilitate the purchase and sale of open-web display ads: publisher ad servers, ad exchanges, and advertiser ad networks. *Id.* § IV.C.3 & ¶¶ 348-351, 381-384. He concluded that the distinct and valuable nature of open-web display advertising supports each of these relevant markets because that distinctiveness limits the ability of open-web publishers and advertisers to substitute away from products used to transact such advertising. *Id.* ¶ 262. He also described how the ability of each of these tools to transact other types of ads does not constrain Google from charging supracompetitive prices or mean that tools that only transact those other types of advertising should be included in the relevant markets. Lee Reb. § IV.B & ¶¶ 189-192, 230-223, 339-345.

1. Publisher Ad Servers

Open-web publishers such as USAToday.com, Weather.com, ESPN.com, or Vox.com use software products called publisher ad servers to facilitate the management and sale of display ads across different sources of advertiser demand (e.g., ad networks and ad exchanges) and transaction types (e.g., direct and indirect purchases).³ Lee Rep. ¶¶ 85, 110-119. Prof. Lee described direct evidence that Google has been able to impose anticompetitive conditions on publishers in the ad server market—for example, by removing a tool that publishers had previously used to reduce their dependence on Google (the ability to set customized bidding “floors” for different exchanges), *id.* ¶ 463—without the constraint of publishers meaningfully substituting away to other products. As Prof. Lee noted, this real-world evidence confirms that competition from other products does not expand his proposed market, *id.* ¶¶ 461-465, as does evidence that Google can charge supracompetitive prices for its ad exchange because of the link between the ad exchange and Google’s publisher ad server, *id.* ¶¶ 333, 453-460.

2. Ad Exchanges

Ad exchanges are “software products that run real-time auctions for publishers’ display ad inventory.” Lee Rep. ¶¶ 24, 103. Prof. Lee concluded that Google’s ability to charge supracompetitive prices for its ad exchange (AdX)—without evidence of customers switching to non-ad-exchange products in response—is evidence that supports his market definition. *Id.* ¶¶ 350-351. For example, Google is able to charge a roughly 20% fee (“take rate”) for impressions sold through its ad exchange, significantly more than most other exchanges. *See id.* ¶¶ 503-507; *see also id.* ¶ 504 (quoting a document in which Google employees ask “whether we

³ “Direct” transactions are subject to terms individually negotiated between publishers and advertisers, whereas “indirect” transactions are a method to sell unsold inventory to many buyers in “real-time,” after publishers have exhausted direct deal sales. Lee Rep. ¶¶ 64-75.

can defend a 50% or 100% premium (15-20% vs. 10%) . . . I do not think it is feasible to try to defend a 3-4x (15-20% vs 5%) on third party AdX buyers”).

3. Advertiser Ad Networks

Advertiser ad networks are products that advertisers use to purchase display ad inventory from publishers while providing a more managed and automated experience, including a simpler user interface than an alternative advertiser buying tool referred to as a demand side platform (“DSP”). Lee Rep. ¶¶ 97-102, 122-125. Prof. Lee noted that Google’s ability to charge supracompetitive prices for its advertiser ad network (Google Ads) is also direct evidence that supports his market definition, because the failure of Google Ads customers to switch to an alternative product in the face of price increases indicates there are no close substitutes. *Id.* § V.D.3.a; Lee Reb. ¶ 251. For example, Google performed multiple analyses showing that it can profitably increase Google Ads’ margins (i.e., without prompting enough Google Ads customers to switch to alternatives to make the price increase unprofitable). *See* Lee Rep. ¶¶ 536-543; *see also id.* ¶ 536 & Fig. 58 (describing a simulation in May 2018 concluding that increasing Google Ads’ margins from 15% to 20% would be profitable).

B. The United States and Worldwide Are Relevant Geographic Markets

As is customary in a market definition exercise, a relevant geographic market can be defined based on the locations of either suppliers or customers (in this case, buyers or sellers of open-web display advertising that use ad tech tools). Prof. Lee focused on customer location—i.e., where open-web publishers and advertisers are located. The physical location of software product suppliers is less relevant here because customers do not obtain the service sought by traveling to the supplier’s location. Lee Rep. ¶ 387.

Prof. Lee explained why both worldwide (excluding a limited number of regions) and United States markets are relevant geographic markets for publisher ad servers, ad exchanges,

and advertiser ad networks. *Id.* ¶¶ 392-397, 401-406. With respect to the U.S. market, he applied the HMT and determined that since a hypothetical monopolist of all publisher ad servers, ad exchanges, or advertiser ad networks serving customers located in the U.S. would likely be able to profitably exercise market power, the U.S. is a relevant geographic market. *Id.* ¶¶ 401-406. Additionally, he noted that the U.S. represents a significant share of open-web display impressions and spending through Google’s ad tech tools. *Id.* § IV.F.2 & ¶ 405 (in 2022, 45% of spend and 31% of impressions transacted through AdX originated from publishers in the U.S.).

Prof. Lee also applied the HMT to a worldwide market and concluded that it too was a relevant geographic market. *Id.* ¶¶ 392-400. He further opined that “there are compelling benefits to examining the whole world when examining the competitive significance and effects of Google’s conduct within the relevant product markets.” *Id.* ¶ 389. For example, “[c]ustomers of ad tech products are located around the world, and transactions between open-web publishers and advertisers occur across country boundaries.” *Id.* ¶ 388. Prof. Lee also noted that Google’s conduct “[is] not limited to customers within any single country” and determined that it was economically significant that ad tech products “enjoy indirect network effects and scale benefits that are not limited to narrow geographic regions,” *id.*, because one harm from Google’s conduct is that the massive scale in worldwide transactions has allowed Google to amass worldwide data that “makes it more difficult for rivals to enter, compete, and expand,” *id.* ¶ 427. *See also id.* § III.D; ¶¶ 451, 496, 533; Lee Reb. ¶¶ 343-345.

C. Calculating Market Shares for Each Market

Having defined three relevant product markets, Professor Lee calculated Google’s market shares for each relevant product. Professor Lee used standard, well-accepted methods of calculating the market share of each product within a market. For example, for the publisher ad server market, Prof. Lee divided the number of open-web display ad impressions transacted

through Google’s publisher ad server (DFP) by the total number of open-web display ad impressions served by publisher ad servers overall.⁴ He further confirmed his share calculations by comparison to Google’s own documents and estimates from its competitors. For example, Prof. Lee estimated that Google’s share of the worldwide publisher ad server market is 91-94%, while internal Google documents indicate a market share of 85-90%. *See* Lee Rep. ¶ 438; Fig. 108; *see also id.* ¶ 478 (internal Google estimates of its ad exchange market share).

LEGAL STANDARD

District courts have a “gatekeeping responsibility” to “ensure that an expert’s testimony both rests on a reliable foundation and is relevant to the task at hand.” *Nease v. Ford Motor Co.*, 848 F.3d 219, 229 (4th Cir. 2017) (quoting *Daubert v. Merrell Dow Pharm.*, 509 U.S. 579, 597 (1993)). The proponent of expert opinion testimony must establish its admissibility by a preponderance of proof. *Daubert*, 509 U.S. at 592 n.10; Fed. R. Evid. 702. “To determine whether an opinion of an expert witness satisfies *Daubert* scrutiny, courts may not evaluate the expert witness’ conclusion itself, but only the opinion’s underlying methodology.” *Bresler v. Wilmington Tr. Co.*, 855 F.3d 178, 195 (4th Cir. 2017). “Moreover, questions regarding the factual underpinnings of the expert witness’ opinion affect the weight and credibility of the witness’ assessment, not its admissibility.” *Id.* (cleaned up).

A “proper market definition” can be “determined only after a factual inquiry into the ‘commercial realities’ faced by consumers.” *Eastman Kodak Co. v. Image Tech. Servs., Inc.*, 504 U.S. 451, 482 (1992) (quoting *United States v. Grinnell Corp.*, 384 U.S. 563, 572 (1966)).

⁴ He calculates U.S. and worldwide market shares for open-web display ad impressions for the publisher ad server market, (Lee Rep. ¶ 445 & App’x D.4, Figs. 45 & 108, Exh. G, Lee Supp. Fig. 6), ad exchange market, (Lee Rep. ¶¶ 481-492 & Figs. 47-48, 88-91; Lee Reb. Fig. 13,), and the advertiser ad network market, (Lee Rep. ¶¶ 530-531 & Figs. 56, 97-99).

“[M]arket definition is a deeply fact-intensive inquiry,” *Kolon Indus.*, 637 F.3d at 443, and is “best allocated to the trier of fact,” *Fineman v. Armstrong World Indus., Inc.*, 980 F.2d 171, 199 (3d Cir. 1992) (citation omitted).

ARGUMENT

Google challenges Prof. Lee’s evidence that open-web display advertising is a distinct form of digital advertising, argues that he improperly defined relevant product and geographic markets, and contends that he incorrectly calculated market shares. At their core, Google’s arguments are not challenges to the methodology by which Prof. Lee reached his opinions, but to the conclusions he drew. The proper vehicle for such challenges is not a motion under Rule 702, but vigorous cross-examination. Google’s Motion should be denied.

I. Prof. Lee Reliably Concluded That Open-Web Display Advertising Is a Distinct, Well Recognized, and Valuable Form of Digital Advertising

Market realities demonstrate that open-web display advertising is a distinct and valuable form of advertising because it satisfies needs and generates value for both publishers and advertisers that is meaningfully different from other types of advertising. Lee Rep. ¶¶ 261-263, 268-270. For example, from the perspective of publishers, open-web advertising allows opportunities to monetize websites that are not well-suited for other types of digital ads. *Id.* ¶¶ 269-270 (noting differences between ads suitable for publishers who offer search results, social media content, instream videos, or product listings). And from the perspective of advertisers, ads on the “open” web can reach a broader range of online activity and interests than the “closed” web. *See id.* ¶¶ 300-303. Prof. Lee reached conclusions about these differences based on his economic expertise, applying reliable economic principles to extensive evidence of real-world conditions, including documents from Google’s own files that distinguish between open-web advertising and other forms of digital advertising. *See, e.g., id.* ¶ 305 n. 417 (Google

document stating that “Web, App, Instream Video, and Search” have “different industry and competitive dynamics”); ¶ 287 & Fig. 28 (Google document differentiating “search” and “display” ads).

Google attempts to resist these conclusions and re-cast open-web display advertising as “made up,” “delineated-for-litigation,” and “divorced from market realities.” Mot. at 1, 14, 16. But contrary to Google’s assertion that open-web display is “not a term . . . that exists in the real world,” Mot. at 7, its own employees have used that phrase, *see supra* at 4, as have other industry participants. *See, e.g.*, Lee Rep. ¶ 300 n. 410 (citing study conducted on behalf of OpenX distinguishing “Open Web” from “Walled Garden” websites); Exh. H, FBDOJGOOG_01140376 at -377, Aug. 13, 2018 (discussing “the prevalence of open web display”); *see also* Exh. I, Lee Dep. 38:14-39:8.⁵

And even when industry participants do not use that exact language, they routinely use the concepts underlying the term.⁶ Google’s arguments rely on semantic nit-picking rather than economic substance and ignore that markets are defined by “commercial realities” rather than labels. *Eastman Kodak*, 504 U.S. at 482; *see also United States v. Bertelsmann SE & Co.*, 646 F. Supp. 3d 1, 32 (D.D.C. 2022) (“anticipated top-selling books” was relevant market, in line with

⁵ *See also* Lee Rep. ¶ 273, n. 356 (citing Helfand Dep. (Disney) 103:7–104:5) (explaining that it is common within the industry to delineate between display and video advertising and that “[d]isplay is normally sitting adjacent to content” whereas “[f]or video, the vast majority of our video is instream, meaning it’s interspersed throughout the content”); Exh. J, TTD_DOJ-GOOG23-0013717 at -717, May 10, 2021 (analyst note discussing The Trade Desk and discussing a user identity solution for “open web/display” advertising); Exh. K, ADOBE – CID 30473 – 0000072946, at -947, June 1, 2019 (discussing “Open Web Display ads” that perform as well as competitors, including Google).

⁶ *See also* Lee Rep. ¶ 306 n. 428 (citing internal Facebook document discussing Facebook’s inability to access non-social programmatic budgets); *id.* ¶ 301 n. 413 (citing IAB Europe document saying the audience for in-app advertising “is highly comprised of heavy smartphone users they tend to trend younger and more affluent than traditional web users”); *id.* ¶ 292 n. 392 (citing blogs comparing native and display ads).

“commercial realities,” though industry participants used different words to refer to the same concept). What matters is not the ubiquity of the label but whether the label accurately describes market realities, which Prof. Lee’s opinions about open-web display advertising do.

Moreover, any similarities between open-web display ads and other digital ads, including in-app ads and video ads, are superficial and belied by meaningful differences. For example, Google insists that the ad tech of Amazon and Meta must be in the same product markets as Google’s ad tech tools because they are “some of Google’s biggest competitors.” Mot. at 16. That may be true with respect to markets that were not alleged by Plaintiffs, but when an open-web publisher wants to monetize ad space on its site, Amazon and Meta—which do not offer ad tech tools to such publishers—are not constraining the price Google can charge to do so. “[T]he mere fact that a firm may be termed a competitor in the overall marketplace does not necessarily require that it be included in the relevant product market.” *Staples*, 970 F. Supp. at 1075; *see also IQVIA*, 2024 WL 81232, at *14-18 (social media and programmatic advertising through DSPs not in the same market, even though both types of advertising compete “in a broad sense”).

That the same publisher can sell different kinds of ads (separately, on different properties) or that different types of ads “can appear on websites,” Mot. at 16, does not determine whether distinct tools that cannot sell open-web display ads are in the same antitrust market as those that do. It is not “absurd,” *id.* at 15, for a single firm to sell products in two different markets or for two products that sell distinct types of ads that “appear on websites” to compete in two different markets. Indeed, these circumstances are commonplace, and economic context matters when defining markets. *See FTC v. Sysco Corp.*, 113 F. Supp. 3d 1, 26 (D.D.C. 2015) (fruit stands and grocery stores not in same market just because “fruit can be bought from both a grocery store and a fruit stand”).

II. Prof. Lee's Hypothetical Monopolist Test Is Reliable

Consistent with standard economic methodology, Prof. Lee premised his market-definition opinion on an analysis of “what would happen if a single firm became the only seller” of a product, and specifically whether it would have the power to harm consumers of that product by “profitably rais[ing] prices above competitive levels.” *FTC v. Advocate Health Care Network*, 841 F.3d 460, 468 (7th Cir. 2016). If it could, then the product constitutes a relevant market, but “if customers could defeat the attempted price increase by buying from outside” the product, then it “is not a relevant market.” *Id.* This so-called “hypothetical monopolist test” is “a viable methodology,” well accepted for the purpose of defining markets in antitrust cases. *FTC v. Syngenta Crop Prot. AG*, -- F. Supp. 3d --, 2024 WL 149552, at *10 (M.D.N.C. Jan. 12, 2024); *see also, e.g., FTC v. Sanford Health*, 926 F.3d 959, 963 (8th Cir. 2019) (“commonly used in antitrust actions to define the relevant market”); *St. Alphonsus Med. Ctr.-Nampa Inc. v. St. Luke's Health Sys., Ltd.*, 778 F.3d 775, 784 (9th Cir. 2015) (“common method” to determine markets).⁷

Google seeks to exclude Prof. Lee's market definition opinion based on his application of the HMT because: (1) he did not conduct new quantitative testing of a price increase and (2) the analysis he conducted of market conditions reflected in documents, testimony, and data was purportedly insufficient to satisfy the HMT. Google's cramped view of the HMT is unsupported and Prof. Lee properly conducted the HMT by evaluating, among other things, qualitative evidence of how advertisers and publishers would respond to a hypothetical price increase.

⁷ Google criticizes Prof. Lee for using the phrase “close substitutes” rather than “reasonable substitutes,” ECF No. 570, MSJ Br. at 14, but that is a distinction without a difference. “Close substitute” means “substitution that's sufficient to constrain the exercise of market power,” Lee Dep. 72:13-73:10, which is the correct standard for defining markets. *See Advocate Health*, 841 F.3d 468.

A. Prof. Lee’s Qualitative Analysis Reliably Applied the Hypothetical Monopolist Test

Imagining what would happen if a hypothetical monopolist raised prices above competitive levels, *see Advocate Health*, 841 F.3d at 468, is a reliable method of defining a market because it interrogates “the choices available” to a product’s customers and whether other products are sufficiently “interchangeable” to be grouped with the first product in a single market, *Eastman Kodak*, 504 U.S. at 482. That is the heart of the product-market question. *See United States v. E.I. du Pont de Nemours & Co.*, 351 U.S. 377, 404 (1956) (“The market is composed of products that have reasonable interchangeability.”); *id.* at 393 (market defined by “how far buyers will go to substitute one [product] for another”).

As Google’s principal economic expert, Dr. Mark Israel, acknowledged, the HMT can be reliably implemented in numerous ways. Exh. L, Israel Dep. 101:21-102:16 (“there are a variety of ways to do the test” including “by looking on whatever evidence you have of substitution”). One reliable way to evaluate the HMT is through qualitative evidence of market conditions because “courts routinely rely on qualitative economic evidence to define relevant markets.” *McWane, Inc. v. FTC*, 783 F.3d 814, 829 (11th Cir. 2015) (cleaned up).⁸ Prof. Lee examined qualitative evidence in two ways, both of which validly apply to the product-market question.

⁸ *See also, e.g., Polypore Int’l, Inc. v. FTC*, 686 F.3d 1208, 1217 (11th Cir. 2012) (defining market through qualitative factors); *Geneva Pharms. Tech. Corp.*, 386 F.3d 485, 496 (2d Cir. 2004) (similar); *Knutson v. Daily Review, Inc.*, 548 F.2d 795, 804 (9th Cir. 1976) (market defined properly without “precise measurement” of customer response to price increase); *United States v. Aetna, Inc.*, 240 F. Supp. 3d 1, 39 (D.D.C. 2017) (“Econometric evidence can be powerful evidence, but it is not the only evidence that courts consider in defining the relevant market.”); *Nobody in Particular Presents, Inc. v. Clear Channel Commc’ns, Inc.*, 311 F. Supp. 2d 1048, 1082 (D. Colo. 2004) (market defined through “other indicia of market definition . . . without an economic study”); *FTC v. Swedish Match*, 131 F. Supp. 2d 151, 161-62 (D.D.C. 2000) (looking to qualitative evidence, rather than quantitative evidence, to define the market).

First, he evaluated product characteristics and customer behavior to determine whether customers’ needs would allow them to find close-enough substitutes for competitively priced products in each market to constrain a hypothetical monopolist from charging supracompetitive prices. Lee Rep. ¶ 253. *Second*, he evaluated whether Google has the power to profitably raise prices of the relevant ad tech products without driving customers to switch to substitute products. Here, Google’s actual power to raise prices as a monopolist helps answer the question of whether a hypothetical monopolist could do the same. *Id.* ¶ 254. Both evidence-based examinations of market conditions are admissible under Rule 702. *See, e.g., Rebotix Repair, LLC v. Intuitive Surgical, Inc.*, 2022 WL 3225366, at *4-5 (M.D. Fla. Aug. 10, 2022) (expert conducting HMT using qualitative evidence); *US Airways, Inc. v. Sabre Holdings Corp.*, 2022 WL 986232, at 1* (S.D.N.Y. Apr. 1, 2022) (same); *Sumotext Corp. v. Zoove, Inc.*, 2020 WL 533006, at 11-12* (N.D. Cal. Feb. 3, 2020) (same); *In re Mushroom Direct Purchaser Antitrust Litig.*, 2015 WL 5767415, at *19 (D.N.J. July 29, 2015) (expert defining market based on defendant’s market power).

B. Independent Quantitative Analysis of Customer Responses to Price Increases Is Unnecessary and Would Have Been Inapt and Impractical in This Case

Google tries to fault Prof. Lee for not analyzing pricing data to independently test a price increase, Mot. at 17, but this criticism is not enough to exclude market definition testimony under the law. Not only is such analysis unnecessary to conduct a reliable hypothetical monopolist test, but doing so here would also have been economically inappropriate.

4. Independent Quantitative Analysis of Customer Responses to Price Increases Is Unnecessary

As Dr. Israel recently acknowledged in another monopolization action against Google, it is “more normal than not that [an expert] doesn’t do a full quantitative hypothetical monopolist test.” Ex. R, Pls.’ Proposed Conclusions of Law at 5, *United States v. Google LLC*, No. 20-3010

(D.D.C. Feb. 23, 2024), ECF No. 838. Courts too have held that experts are not required to perform empirical testing to reliably define a market, through the hypothetical monopolist test or otherwise.⁹ Google responds with a sleight of hand—mischaracterizing Prof. Lee’s analysis as only a *Brown Shoe* practical indicia assessment and then citing to cases that criticize solely relying on such an assessment. Mot. at 17-18. Setting aside that other courts routinely rely on *Brown Shoe* indicia to indicate the bounds of reasonable interchangeability and thus define a market, *see, e.g., Illumina, Inc. v. FTC*, 88 F.4th 1036, 1048-50 (5th Cir. 2023), the precedent Google cites is inapposite here because Prof. Lee conducted a valid hypothetical monopolist test that “rel[ie]d on qualitative economic evidence to define relevant markets.” *McWane*, 783 F.3d at 829 (quotation marks and citation omitted).

Kentucky Speedway, LLC v. National Association of Stock Car Auto Racing, Inc., 588 F.3d 908 (6th Cir. 2009), which Google principally relies on, is not to the contrary. There, the court held that the trial court had not erred in excluding an expert who “did not evaluate a broader range of potential substitutes” and performed an unrecognized analysis of prices and attendance that “was produced solely for this litigation.” *Id.* at 918. After affirming this exclusion, the Sixth Circuit suggested that evaluation of “practical indicia” of market definition, as set forth in *Brown Shoe*, 370 U.S. at 325, “come[s] into play only after . . . evaluating ‘the

⁹ For example, in *Sumotext*, the court denied a motion to exclude an expert who performed the hypothetical monopolist test “without reference to any empirical analysis,” but instead based on “qualitative data such as employee testimony, third-party industry analyses, and media coverage.” 2020 WL 533006, at *11. Similarly, in *US Airways*, the court denied a motion to exclude an economic expert’s market definition opinions that were based on “‘qualitative’ data or analysis of real-world market conditions that suggest reasonable interchangeability,” and it rejected the “proposition that a reliable market definition must rest on empirical studies”—the very proposition Google asks this Court to adopt. 2022 WL 986232, at *1; *see also Rebotix Repair*, 2022 WL 3225366, at *4-5 (denying motion to exclude expert’s hypothetical monopolist test based on “testimony and business records” and not “pricing data” or other empirical analysis of substitution).

reasonable interchangeability of use or the cross-elasticity of demand between the product itself and substitutes for it.” *Id.* (quoting *Brown Shoe*, 370 U.S. at 325).

Putting aside whether the court in *Kentucky Speedway* was purporting to restrict interchangeability analysis only to quantitative methods and the fact that no other court has construed the decision that way, here Prof. Lee did, in fact, evaluate reasonable alternatives and whether and why customers would switch to alternatives, including in response to a price increase.¹⁰ Lee Rep. ¶¶ 322-28, 339-45, 360-75. The term “cross-elasticity of demand” is a measure of how many customers would switch to alternative products in response to a price increase; while it can sometimes be quantified, but it need not be to reliably inform an opinion about market definition, and *Kentucky Speedway* did not suggest otherwise. *See, e.g., Illumina*, 88 F.4th at 1050 (plaintiff not “required to mathematically demonstrate cross-elasticity of demand”); *McWane*, 783 F.3d at 828 (“technical analysis” or “econometric analysis” of cross-elasticity not required); *U.S. Anchor Mfg., Inc. v. Rule Indus., Inc.*, 7 F.3d 986, 995 (11th Cir. 1993) (“it is usually necessary to consider other factors that can serve as useful surrogates for cross-elasticity data”) (citation omitted); *Sabre*, 2022 WL 986232, at *1 (“qualitative” analysis sufficient to “suggest . . . cross-elasticity of demand”); *Twin City Sportservice, Inc. v. Charles O. Finley & Co.*, 512 F.2d 1264, 1271-73 (9th Cir. 1975) (evaluating cross-elasticity with reference to contracts and lay trial testimony).¹¹ Allowing a qualitative assessment of cross-elasticity of

¹⁰ Additionally, Prof. Lee reviewed evidence from Google simulations and experiments that showed Google could profitably raise prices for DFP, AdX, and Google Ads significantly above their current levels. *See* Lee Rep. ¶¶ 458, 501-502, 808, 810-811. Professor Lee also referred to deposition testimony indicating that advertising customers would not substitute meaningfully from ad exchanges in the event of a price increase. *Id.* ¶¶ 342 n. 493, 343.

¹¹ *Teradata Corp. v. SAP SE*, 570 F. Supp. 3d 810 (N.D. Cal. 2021), *argued*, No. 23-16065 (9th Cir. Feb. 12, 2024), is inapposite because it involved an expert’s use of questionable data to apply different methodology that, unlike the hypothetical monopolist test, “has rarely been accepted by courts.” *Id.* at 839.

supply is sensible because qualitative analysis based on contemporaneous evidence of how market participants like Google make business decisions about pricing and pricing power reflects the real world.

5. The Particular Quantitative Analysis Google Suggests Would Be Inappropriate and Lead to Misleading Results Here

An independent empirical analysis of customer responses to a price increase would have been inappropriate here. Such an analysis would evaluate whether an increase above *current* prices would trigger enough customer switching to other products to make such a price increase unprofitable. But as Prof. Lee noted, that would be inappropriate here because current prices do not reflect a competitive marketplace and empirical analysis based on current prices could result in the HMT producing false negatives. *See* Lee Rep. ¶¶ 250-251 & nn. 339-341; Lee Reb. ¶¶ 72-76.

Because Google's conduct has already raised prices above their competitive levels, any substitution prompted by a *further* increase may paradoxically be "the product of monopoly power rather than a belief on the part of consumers that the products are good substitutes for one another." *United States v. Eastman Kodak Co.*, 63 F.3d 95, 105 (2d Cir. 1995). In other words, "[a]t a high enough price, even poor substitutes look good to the consumer." *Id.* Because calculating cross-elasticity of demand at competitive prices requires knowing what those prices would be, and because that is essentially impossible when, as here, a monopolist has already been charging supra-competitive prices over an extended period, such a calculation would be impractical at best, and misleading at worst.

Prof. Lee implemented the hypothetical monopolist test to avoid this pitfall by examining and accounting for Google's existing monopoly power. In that sense, eschewing an empirical test that would lead to false or misleading results is a feature, not a bug, in Prof. Lee's analysis

because “the market at issue did not call for” it. *Rebotix Repair*, 2022 WL 3225366, at *5. Rather than relying on current prices and assuming, despite clear evidence to the contrary, that they are at competitive levels, Prof. Lee asked whether competition from products outside of the relevant markets would prevent Google from charging prices above competitive levels. Based on a wide range of evidence, he concluded that it would not. *See* Lee Rep. ¶¶ 500-502, Figs. 52-53.

For example, Prof. Lee evaluated evidence, much of it from Google’s own documents and analyses, showing that Google has been able to exercise substantial market power in the ad exchange market, including by (1) charging a supra-competitive price for AdX, (2) maintaining a stable price for AdX for the past decade without losing substantial share, despite out-of-market advertisement options growing in significance, (3) profitably raising publishers’ reserve prices (i.e., price floors) above prior levels, and (4) degrading the quality of AdX by not providing real-time bids into rival publisher ad servers. Lee Rep. ¶¶ 350, 497-518. Similarly, Prof. Lee evaluated evidence that Google has been able to profitably degrade the quality of its publisher ad server (DFP), which is analogous to supracompetitive pricing for purposes of the HMT because in a competitive market, customers would switch to an alternative product when faced with a significant degradation in quality. Lee Rep. ¶¶ 461-463.

Prof. Lee also properly relied on evidence of Google’s monopoly power to evaluate market definition because evidence of a dominant firm’s actual ability to profitably increase prices on a set of goods is probative of a hypothetical monopolist’s ability to do the same, and it thus supports the conclusion that the set of goods constitute a market. *See In re Aggrenox Antitrust Litig.*, 199 F. Supp. 3d 662, 668 (D. Mass. 2016) (“[A]rticulating a relevant market definition is not an end in itself, but is in the service of answering the question of market power.”). Accordingly, when an expert offers market-definition opinions based on “direct

evidence of market power,” as Prof. Lee has here, those opinions are admissible under Rule 702. *See In re Mushroom*, 2015 WL 5767415, at *19 (denying motion to exclude economist’s market-definition opinions based on “direct evidence that [defendant] could raise prices profitably”).

C. Professor Lee Reliably Excluded In-House Ad Tech Tools and Ad Tech Tools Used for Other Types of Ads

Prof. Lee appropriately excluded from his market definition tools that are not useful to buying or selling open-web display ads: in-house ad tech tools not available to open-web publishers, and ad tech tools used to buy and sell other digital ads that are unable to transact open-web display ads. As demonstrated in Part I above, open-web display ad transactions are distinct from other kinds of digital ad transactions from the perspective of publishers and advertisers. Therefore, to combine like products and exclude distinct products, it was reasonable for Prof. Lee to conclude that tools used for the sale of open-web display ads are not in the same market as ad tech tools solely used to buy other types of digital advertising.

A market is properly defined by “the output of suppliers to which a group of customers can turn for their requirements of a particular product,” and “services are not in the same product market merely because they have a common provider.” *United States v. Rockford Mem’l Corp.*, 898 F.2d 1278, 1283-84 (7th Cir. 1990); *see also Int’l Boxing Club of N.Y., Inc. v. United States*, 358 U.S. 242, 249-250 (1959) (championship boxing matches in separate market from other boxing contests, despite “physical identity of the products”); *Spirit Airlines, Inc. v. Nw. Airlines, Inc.*, 431 F.3d 917, 933-934 (6th Cir. 2005) (separate markets for leisure and business airlines passengers, though both fly on the same airplanes); *Staples*, 970 F. Supp. at 1073-74 (approving market for “the sale of consumable office supplies through office superstores” that excluded non-

consumable office supplies sold at same stores).¹² Accordingly, a well-defined market can include some products or services made with a given set of assets while excluding other products or services made with those same assets.

Google nevertheless contends that the relevant market must include ad tech tools for all digital advertising. Wielding the analogy of a “Swiss Army knife,” Google contends this is because many of the tools that facilitate the sale of open-web display ads can also facilitate the sale of other kinds of digital advertising, much like how a Swiss Army knife contains many different tools. Mot. at 2-3. This tortured analogy fails for multiple reasons.

First, the analogy collapses under its own weight because it concedes that open-web display transactions/impressions are not reasonable substitutes for other kinds of digital ad transactions/impressions. Transacting open-web display ads is analogized to a single tool on the knife (*e.g.*, a “corkscrew”), but the purpose of a Swiss Army knife is to bring together in one place complementary tools—such as a corkscrew and nail file—that are not “reasonabl[y] interchangeab[le]” and therefore are not in the same product market. *E.I. du Pont*, 351 U.S. at 404. To confuse things further, Google begins from a premise of “defining a market for Swiss Army knives,” Mot. at 2, when Plaintiffs do not define such analogous markets (*e.g.*, digital ad exchanges generally). A more fitting analogy would be that Plaintiffs define a market for corkscrews, but Google contends that knives, screwdrivers, and can openers, must also be included in that market simply because Swiss Army knives contain all four tools.¹³

¹² See also *Full Draw Prods. v. Easton Sports, Inc.*, 182 F.3d 745, 756 (10th Cir. 1999) (archery trade shows can be a separate market from gun shows even though gun shows include archery); *Bertelsmann*, 646 F. Supp. 3d at 30 (publishing anticipated top-selling books is in separate market from publishing other books even though publishers sold both types).

¹³ Google later mixes up its analogy when discussing supply-side substitution, Mot. at 26, and switches from discussing a multi-feature product to multi-product facility.

Second, even if Google’s analogy is taken at face value, it misses the point of the market definition exercise because it conflates multi-functionality with reasonable interchangeability. That a product has multiple functions, a seller offers multiple products, or multiple products involve at least some of the same technology or assets does not mean one or more of those functions or products is not a distinct antitrust market. *See, e.g., Rockford Mem’l*, 898 F.2d at 1283-84. Thus, it is entirely consistent with sound economics and common sense that there can both be a market for Swiss Army knives and separate markets for corkscrews, nail files, etc., As the Supreme Court has observed, within “[t]he outer boundaries of a product market,” there can also be “well-defined submarkets . . . which, in themselves constitute products for antitrust purposes,” *Brown Shoe*, 370 U.S. at 325, such as ad tech tools that transact open-web display ads.

D. Professor Lee’s Worldwide Market Is Relevant, Reliable, and Well-Supported

The relevant geographic market is the area “within which the defendant’s customers who are affected by the challenged practice can practicably turn to alternative supplies if the defendant were to raise its prices or restrict its output.” *Kolon Indus.*, 637 F.3d at 441. Like the product-market inquiry, “determining the relevant geographic market is a fact-intensive exercise centered on the commercial realities of the market and competition.” *Id.* at 442. Thus, among the many relevant considerations is “the area within which the defendant and its competitors view themselves as competing.” *Id.* at 442-43. A geographic market “need not . . . be defined with scientific precision.” *United States v. Conn. Nat’l Bank*, 418 U.S. 656, 669 (1974).

As Prof. Lee explains, based on considerable evidence, a worldwide geographic market is an appropriate geographic market because, among other things: (1) customers (advertisers and open-web publishers) of all three relevant products are located worldwide and many buy and sell

open-web display ads internationally; (2) competition among ad tech providers is global, and major competitors for each tool serve customers globally, (3) ad tech firms enjoy indirect network effects and scale benefits not limited to narrow geographic regions, (4) Google’s display advertising business operates globally, and (5) Google’s challenged conduct harms competition in similar ways across the world. *See* Lee Rep. ¶¶ 388-89, 393-97, Figs. 84-86; Lee Reb. ¶ 350.¹⁴ There is no credible question that Prof. Lee’s opinions and the evidence underlying them would help the jury in their “fact-intensive exercise” to ascertain the appropriate geographical market. *See Kolon Indus.*, 637 F.3d at 442-43.

Given the global scope of Google’s conduct and its resulting harm, evaluating a global market is both sensible and in line with precedent. *See, e.g., H&R Block, Inc.*, 833 F. Supp. 36, 50 n.7; *IQVIA Holdings Inc.*, 2024 WL 81232, at *31-32; *United States v. Microsoft Corp.*, 84 F. Supp. 2d 9, 14 (D.D.C. 1999). Plaintiffs have always alleged both a United States market and a worldwide market, ECF No. 1 ¶¶ 280-281; ECF No. 120 ¶¶ 280-281, and so Prof. Lee’s opinions do not “expand[] the geographic market,” as Google contends, Mot. at 23. Nor is there anything unusual about alleging multiple geographic markets, including markets nested within each other, such as a national market and smaller regional or local markets.¹⁵ Contrary to Google’s assertion, it is therefore not unreliable to evaluate competition in multiple geographic markets for the same product. *See* Mot. at 22-23.

¹⁴ *See also* Exh. M, GOOG-DOJ-11890293 at -322, Jan. 2020 (Google presentation showing global advertising spending (cited in Lee Rep. ¶ 393)); Exh. N, GOOG-DOJ-AT-01592535 at -553, Dec. 20, 2019 (showing advertising revenue flowing between global regions).

¹⁵ *See, e.g., United States v. Marine Bancorp.*, 418 U.S. 602, 622 & n.20 (1974) (“there may be more than one relevant geographic market”); *United States v. Anthem, Inc.*, 855 F.3d 345, 350-51 (D.C. Cir. 2017) (both 14-state “national accounts” market and at least one local market within one of the states); *New York v. Deutsche Telekom AG*, 439 F. Supp. 3d 179, 203-05 (S.D.N.Y. 2020) (both national market and “additional local markets”).

Because it is sometimes appropriate to have multiple, nested geographic markets, courts' occasional use of a "smallest market" heuristic to identify relevant geographic markets is not a rigid, mandatory rule requiring the single, smallest market in every case. Rather, the purpose of focusing on the "narrowest" or "smallest" market is to capture risks to competition that "will likely be less apparent in a broader, less concentrated market," not to allow risks to competition in a broader market to evade scrutiny—which is what Google seeks to do here. *FTC v. Peabody Energy Corp.*, 492 F. Supp. 3d 865, 885-86 (E.D. Mo. 2020). Indeed, the permissive rather than mandatory nature of the "smallest market" principle is reflected in the fact that it is also true "[t]he geographic demarcation should not be too tightly drawn." *Consul, Ltd. v. Transco Energy Co.*, 805 F.2d 490, 495 (4th Cir. 1986).

Prof. Lee recognized that there can be some differences in competitive conditions for the relevant ad tech tool markets across countries and regions, and he considered whether those variations are material to his opinion that worldwide is a relevant geographic market. *See* Lee Reb. ¶¶ 351-355. After taking these factors into account, Prof. Lee concluded that the nature of Google's conduct and the competition in the three relevant product markets—conduct that "spans regions," and competition "connected through economies of scale and scope or through customers that operate across regions"—warranted a global geographic market. *Id.* ¶ 354. The mere existence of some variation across countries does not undermine the validity of his geographic-market opinions, otherwise a global market would never be appropriate. And the nature of the limited variations Google identifies do not call into question Prof. Lee's analysis. *See, e.g.,* Lee Reb. ¶¶ 351-355 & Figs. 22-23 (showing minimal variation in market share of spending on AdX by Google's ad-buying tools across five geographically dispersed countries). They can be explored on cross-examination, but they are not grounds for exclusion.

Google’s self-serving characterization that the United States’ damages claim—recovering overcharges on behalf of eight federal government agencies—is the “focus” of the Complaint. Mot. at 22, does not limit the worldwide impact of Google’s conduct.¹⁶ The United States does not *merely* seek damages on behalf injured federal agencies in this case. Plaintiffs seek to enforce the nation’s antitrust laws, including with respect to any injunctive relief on behalf of the broader public that is necessary to remedy Google’s anticompetitive conduct. Any such injunction would affect competition globally.

III. Professor Lee’s Market Share Calculations Are Reliable, Consistent with His Proposed Market Definitions, and Supported by Relevant Law

Prof. Lee reliably calculated Google’s market share in each relevant market, primarily using transactional data. *See* Lee Rep. ¶¶ 443-445, 480-495, 529-532. Tellingly, Prof. Lee’s calculations often aligned with Google’s own contemporaneous internal estimates of its market shares. Lee Rep. ¶¶ 438-442, 477-479, 527-528. These market shares were calculated for the product and geographic markets that Prof. Lee concluded were appropriate for evaluating competition, and therefore Google’s critiques of his market-share calculations are largely repackaged market-definition criticisms. In addition to the reasons discussed *supra* Parts I and II, Google’s market-share critiques fail for at least two additional reasons.

First, as a threshold matter, the “fatal mismatch” Google claims, Mot. at 24, 29, is illusory. Prof. Lee defined markets for three kinds of ad tech tools “that serve and transact open-web display advertising,” Lee Rep. ¶ 12(1), not ad tech tools that serve and transact all types of digital advertising. Google divines a “mismatch” by refusing to accept commercial reality of

¹⁶ Google’s argument is especially surprising in light of the Motion to Strike Jury Demand and to Dismiss, ECF No. 628, that Google filed after 6 pm yesterday, March 16, 2024. Unlike Google’s argument above, that brief characterizes the relief Plaintiffs seek as “overwhelmingly equitable.” *Id.* at 1.

these markets, instead assuming that the “actual products” at issue are each type of ad tech tool writ large.¹⁷ *See, e.g.*, Mot. at 24 (contending Prof. Lee “is measuring market shares for each tool” and not “a limited aspect of each tool’s functionality”); *id.* at 26 (contending “the actual products here” are the tools “as a whole”); *id.* at 29 (contending Prof. Lee defines “markets for tools capable of transacting ‘open-web display ads’”). Accordingly, Google’s criticisms of how Prof. Lee calculated market shares are based not (as they should be) on “the markets as [Prof. Lee] defines them,” *id.* at 25, but on the markets as Google would prefer them to be defined. That is no basis to exclude his opinions.

Second, Google’s criticism that Prof. Lee did not adequately account for the ability of ad tech tool customers and competitors to switch away from non-open-web-display transactions and into the three relevant markets is unavailing. As explained above, from the perspective of publishing and advertising customers, publishers do not have close substitutes for publisher ad servers or ad exchanges, and small advertisers’ ability to substitute to alternatives for advertiser ad networks has not, and would not, stop Google from increasing prices to supra-competitive levels. Lee Rep. ¶¶ 322-328 (publishers), 360-375 (advertisers). Google claims, without support, that these customers “necessarily” choose ad tech tools “based on the full feature set of the products.” Mot. at 25. Yet because there is a distinct demand for open-web display ad transactions, *see supra* Part I, Google’s monopoly power over tools that facilitate such transactions is not constrained by the availability of other “features,” Mot. at 25. *See Rockford Mem’l*, 898 F.2d at 1283-84.

¹⁷ *See, e.g.*, Mot. at 24 (contending Prof. Lee “is measuring market shares for each tool” and not “a limited aspect of each tool’s functionality”); *id.* at 26 (contending “the actual products here” are the tools “as a whole”); *id.* at 29 (contending Prof. Lee defines “markets for tools capable of transacting ‘open-web display ads’”).

Further, Google’s arguments about the availability of products and features focused on types of digital advertising other than open-web display ads fall flat. Prof. Lee considered in detail evidence related to possible substitution from other forms of digital advertising. *See* Lee Rep. §§ IV.C.1 & IV.D.1. Google’s supply-side substitution criticisms fail because they are disconnected from the realities of the ad tech markets Prof. Lee finds. Some courts have held that substitution by suppliers between products can be relevant to market definition in narrow circumstances when suppliers are likely to quickly and profitably redeploy assets from an adjacent market into the relevant market in response to a price increase. *See, e.g., FTC v. RAG-Stiftung*, 436 F. Supp. 3d 278, 293-94 (D.D.C. 2020). The capability of an ad tech tool to facilitate multiple different kinds of digital ad transactions, however, is not the same as supply-side substitution and does not constrain Google’s power over open-web display ad transactions. Multi-functionality within the ad tools thus cannot open a new pathway for open-web display ad transactions: The mix of transactions that a tool facilitates is determined by publishers’ supply of digital ad inventory, and advertisers’ demand for digital advertising—not by ad tech tools alone. *See, e.g.,* Lee Rep. ¶¶ 307-317. Therefore, Google’s existing competitors cannot unilaterally “shift production” to open-web display transactions the same way that a factory might be able to shift production from one kind of widget to another. *See* Mot. at 26. Indeed, Prof. Lee analyzed in detail the substitutability of other ad tech products and concluded that none offers a close substitute for publisher ad servers, ad exchanges, or advertiser ad networks, Lee Rep. ¶¶ 322-328, 339-345, 360-375, and Google does not contend otherwise.

Because ad tech tools cannot influence the mix of transactions they facilitate in the same way that a manufacturing facility can sometimes swing the mix of its output to discipline a price increase, the cases Google cites are off the mark. In each case, producers in an adjacent market

could easily and profitably swing production to the relevant markets. *See Rebel Oil Co. v. Atl. Richfield Co.*, 51 F.3d 1421, 1436 (9th Cir. 1995) (gas stations could convert from full service to non-full service); *Bepco, Inc. v. Allied-Signal, Inc.*, 106 F. Supp. 2d 814, 824 (M.D.N.C. 2000) (producers could shift production among different kinds of airbrake components); *J.H. Westerbeke Corp. v. Onan Corp.*, 580 F. Supp. 1173, 1187 (D. Mass. 1984) (same for diesel and gasoline electricity generators). Google cites no evidence that ad tech tools facilitating transactions other than open-web display ads could do anything similar.

To the contrary, ad tech providers that have tried to compete with Google in open-web display have failed because Google's conduct and dominance in open-web display has created high entry barriers. For example, Facebook built an advertiser ad network product ("FAN"), but Facebook's ad network later exited the open-web market, while continuing to serve as an app-based ad network, in part because Facebook recognized that the two markets were different, and it could not compete against Google. Exh. O, FBDOJGOOG_01495007 at -008 (explaining the decision to exit and discussing the differences between "web" and "app market"). Similarly, The Trade Desk, a large demand-side platform, has struggled to compete against Google because Google has an advantage in open-web display due to "Google' dominant position in publisher ad serving, in the Display ad network . . . and in . . . AdX." Exh. P, Dederick (The Trade Desk) Dep. at 191:15-194:23; *see also* Exh. Q, Soroca (Magnite) Dep. at 97:11-99:12, 186:18-187:10 (a company that offered an ad server for connected TV "believe[d]" it "would not be able to enter . . . the display market" because "display ad serving is a "totally different market" with "different sellers of inventory" and "different budgets"). This evidence from industry participants reinforces Prof. Lee's conclusions that the markets need not include tools that facilitate in-app and instream video ad transactions.

CONCLUSION

For the foregoing reasons, Plaintiffs request that the Court deny Google's motion to exclude the testimony of Prof. Robin S. Lee.

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Respectfully submitted,
JESSICA D. ABER
United States Attorney

JASON S. MIYARES
Attorney General of Virginia

/s/ Gerard Mene
GERARD MENE
Assistant U.S. Attorney
2100 Jamieson Avenue
Alexandria, VA 22314
Telephone: (703) 299-3777
Facsimile: (703) 299-3983
Email: Gerard.Mene@usdoj.gov

/s/ Tyler T. Henry
STEVEN G. POPPS
Deputy Attorney General
TYLER T. HENRY
Assistant Attorney General

Office of the Attorney General of Virginia
202 North Ninth Street
Richmond, VA 23219
Telephone: (804) 692-0485
Facsimile: (804) 786-0122
Email: thenry@oag.state.va.us

/s/ Julia Tarver Wood
JULIA TARVER WOOD
/s/ Daniel Guarnera
DANIEL GUARNERA

Office of the Attorney General of Virginia
202 North Ninth Street
Richmond, VA 23219
Telephone: (804) 692-0485
Facsimile: (804) 786-0122
Email: thenry@oag.state.va.us

/s/ Brent K. Nakamura
BRENT K. NAKAMURA
/s/ James Ryan
JAMES RYAN

United States Department of Justice
Antitrust Division
450 Fifth Street NW, Suite 7100
Washington, DC 20530
Telephone: (202) 307-0077
Fax: (202) 616-8544
Email: Julia.Tarver.Wood@usdoj.gov

Attorneys for the Commonwealth of Virginia and
local counsel for the States of Arizona, California,
Colorado, Connecticut, Illinois, Michigan,
Minnesota, Nebraska, New Hampshire, New
Jersey, New York, North Carolina, Rhode Island,
Tennessee, Washington, and West Virginia

Attorneys for the United States